

## Hall Effect DC Current Sensor CYHCT-KCC

This Hall Effect current sensor is based on open loop principle and designed with a split core and a high galvanic isolation between primary conductor and secondary circuit. It can be used for measurement of DC current etc. The output of the transducer reflects the real wave of the current carrying conductor.

Product Characteristics	Applications
<ul style="list-style-type: none"> <li>• Excellent accuracy</li> <li>• Very good linearity</li> <li>• Less power consumption</li> <li>• Window structure with split core</li> <li>• Electrically isolating the output of the transducer from the current carrying conductor</li> <li>• No insertion loss</li> <li>• Current overload capability</li> </ul>	<ul style="list-style-type: none"> <li>• Photovoltaic equipment</li> <li>• Frequency conversion timing equipment</li> <li>• Various power supply</li> <li>• Uninterruptible power supplies (UPS)</li> <li>• Electric welding machines</li> <li>• Numerical controlled machine tools</li> <li>• Electrolyzing and electroplating equipment</li> <li>• Electric powered locomotive</li> <li>• Microcomputer monitoring</li> <li>• Electric power network monitoring</li> </ul>

### Electrical Data/Input

Primary Nominal DC Current $I_r$ (A)	Primary Current Measuring Range $I_p$ (A)	Output current (mA)	Part number (see application notes on page 3)
1000A	0 ~ ± 1000A	4-20mA	CYHCT-KCC-U/B1000A-n
2000A	0 ~ ± 2000A		CYHCT-KCC-U/B2000A-n
3000A	0 ~ ± 3000A		CYHCT-KCC-U/B3000A-n
4000A	0 ~ ± 4000A		CYHCT-KCC-U/B4000A-n
5000A	0 ~ ± 5000A		CYHCT-KCC-U/B5000A-n
6000A	0 ~ ± 6000A		CYHCT-KCC-U/B6000A-n
8000A	0 ~ ± 8000A		CYHCT-KCC-U/B8000A-n
10000A	0 ~ ± 10000A		CYHCT-KCC-U/B10000A-n

(n=2,  $V_{cc}$ = +12VDC; n=3,  $V_{cc}$  =+15VDC; n=4,  $V_{cc}$  =+24VDC, n=5,  $V_{cc}$  =±12VDC, n=6,  $V_{cc}$  =±15VDC, n=7,  $V_{cc}$  =±24VDC, U: unidirectional, B: bidirectional)

Supply Voltage:

Current Consumption

Isolation Voltage

$V_{cc}$ =+12V, +15V, +24V± 5%

$I_c$  < 50mA + Output current

6kV, 50/60Hz, 1min

### Accuracy and Dynamic performance data

Accuracy at  $I_r$ ,  $T_A=25^\circ\text{C}$  (without offset),

Linearity from 0 to  $I_r$ ,  $T_A=25^\circ\text{C}$ ,

Electric Offset Current,  $T_A=25^\circ\text{C}$ ,

Thermal Drift of Offset current,

Load resistance:

Response Time at 90% of  $I_p$  ( $f=1\text{kHz}$ )

Frequency Bandwidth (-3dB),

<1.0%

$E_L$  <1.0% FS

4mA DC or 12mA DC

<±0.005mA/°C

80-450Ω

$t_r$  < 1ms

$f_b$  = DC-3 kHz

### General Data

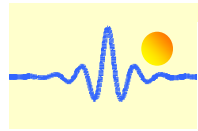
Ambient Operating Temperature,

Ambient Storage Temperature,

$T_A$  =-25°C ~ +85°C

$T_S$  =-40°C ~ +100°C





## Application Notes

### 1) Part number CYHCT-KCC-U/BxxxxA-n

**U:** unidirectional input current; **B:** bidirectional input current; **xxxx:** current value; **n:** power supply (n=2,  $V_{cc}=+12VDC$ ; n=3,  $V_{cc}=+15VDC$ ; n=4,  $V_{cc}=+24VDC$ , n=5,  $V_{cc}=\pm 12VDC$ , n=6,  $V_{cc}=\pm 15VDC$ , n=7,  $V_{cc}=\pm 24VDC$ )

**Example 1:** CYHCT-KCC-U1000A-4 Hall Effect DC Current sensor with  
Output signal: 4mA - 20mA DC  
Power supply: +24V DC  
Rated input current: 0 - 1000A DC (unidirectional)

**Example 2:** CYHCT-KCC-B1000A-2 Hall Effect DC Current sensor with  
Output signal: 4mA – 12mA - 20mA DC  
Power supply: +12V DC  
Rated input current: -1000A - 0 - +1000A DC (bidirectional)

### 2) Relation between Input current and output signal

Current Sensor CYHCT-KCC-U1000A-4		
Input current (A)	Output current $I_o$ (mA)	Output voltage $V_o$ (V) (Measuring resistance $R_m=250\Omega$ )
0	4	1
250	8	2
500	12	3
750	16	4
1000	20	5

Current Sensor CYHCT-KCC-B1000A-2		
Input current (A)	Output current $I_o$ (mA)	Output voltage $V_o$ (V) (Measuring resistance $R_m=250\Omega$ )
-1000	4	1
-750	6	1.5
-500	8	2
-250	10	1.5
0	12	3
250	14	3.5
500	16	4
750	18	4.5
1000	20	5